

# Lecture 3

Qs5 ii)

12h

$$\begin{aligned}\text{largest segment number} &\rightarrow 00012h - \overset{\text{smallest offset}}{\downarrow} 0000 \\ &= 00012 \\ &= 00010h \\ &= D001 \leftarrow \text{largest segment}\end{aligned}$$

$$\begin{aligned}\text{offset} &\rightarrow (00012 - 00010) = 0002 \\ \text{so highest logical address} &= (0001:0002)\end{aligned}$$

$$\begin{aligned}\text{smallest segment number} &\rightarrow 00012h - \overset{\text{largest offset}}{\downarrow} FFFFh \\ &= \text{this value less than } 00000h \text{ so we take } 00000h \\ &= 0000 \\ &= D000 \leftarrow \text{largest segment}\end{aligned}$$

$$\begin{aligned}\text{offset} &\rightarrow (00012 - 00000) = 0012 \\ \text{so highest logical address} &= (0000:0012)\end{aligned}$$

Qs6 i)

41216h

(i) Lowest segment number  $\rightarrow 41216 - \overset{\text{highest offset}}{FFFF}$   
 $= 31217$   
 $= 31220h$  (Round up)  
 $= 3122$

Offset:-  $41216 - 31220 = FFF6h$

lowest logical address =  $(3122: FFF6)$

(ii) 2nd lowest logical address:- segment number of lowest + 1h  
 $= \underline{3123}$

offset:-  $(41216 - \underline{31230}) = FFE6$

2nd lowest logical address  $\rightarrow (3123: FFE6)$

(iii) 2nd lowest logical address:- segment number of lowest + 2h  
 $= \underline{3124}$

offset:-  $(41216 - \underline{31240}) = FFD6$

2nd lowest logical address  $\rightarrow (3124: FFD6)$

(iv) 9th lowest logical address:- segment number of lowest +8h  
 $= 3122h + 8h = \underline{312A}$

offset:-  $(41216 - \underline{312A0}) = FF76$

2nd lowest logical address  $\rightarrow (312A: FF76)$

(v) 12th lowest logical address:- segment number of lowest +Bh ↙ always in hex  
↗ was 11 in decimal  
 $= 3122h + Bh = \underline{312D}$

offset:-  $(41216 - \underline{312D0}) = FF46$

2nd lowest logical address  $\rightarrow (312D: FF46)$

**Qs7 iii)**

96823 h.

(i)

largest segment number  $\rightarrow 96823 - 0000$  ↙ lowest offset  
 $= 96823$   
 $= 96820h$  ↙ Round down  
 $= 9682 \leftarrow \text{largest segment}$

offset:-  $96823 - 96820 = 0003$

lowest logical address =  $(9682: 0003)$

(i) 4th highest segment number = segment number of highest - 3 h  
 $= 9682 - 3h = 967Fh$

offset :-  $(9682 - \underline{967F0}) = 33$

2nd lowest logical address  $\rightarrow (967F:0033)$

(ii) 7th highest segment number = segment number of highest - 6 h  
 $= 9682 - 6h = 967Ch$

offset :-  $(9682 - \underline{967C0}) = 63$

7th largest logical address  $\rightarrow (967C:0063)$